M30100T-PRB

Pod Probe for M16C/10 Group MCUs

User's Manual

Rev.1.00
September 1, 2003
REJ10J0278-0100Z

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\SUPPORT\Product-name\SUPPORT.TXT

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Preface

The M30100T-PRB is a pod probe for M30100/M30102 Group of Renesas 16-bit MCUs. The M30100T-PRB is used by connecting to a PC4701 emulator main unit and the M30100T-RPD-E emulation pod main unit.

This manual mainly explains specifications, how to set up the M30100T-PRB. For detail information about the emulator main unit, emulation pod main unit, and emulator debugger, refer to each user's manual.

Emulator main unit:	PC4701 User's Manual
Emulation pod main unit:	M30100T-RPD-E User's Manual
Emulator debugger:	M3T-PD30 User's Manual

To check the components of this product, refer to "Table 2.1 Package Components" (page 14) in this manual. If there is any question or doubt about this product, contact your local distributor.

To use the product properly

Precautions for Safety:

- Both in this User's Manual and on the product itself, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.
- The icons' graphic images and meanings are given in "Chapter 1. Precautions for Safety". Be sure to read this chapter before using the product.

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Terminology

Some specific words used in this user's manual are defined as follows:

Emulator system

This means an emulator system built around the PC4701 emulator. The PC4701 emulator system is configured with an emulator main unit, emulation pod, pod probe, host machine and emulator debugger.

Emulator main unit (Hereafter PC4701)

This means the generic name for emulators for 8 and 16-bit MCUs. For details on specific models of PC4701, visit the Renesas Tools Homepage at http://www.renesas.com/en/tools

Emulation pod main unit

This means emulation pod M30100T-RPD-E for the M16C/10 Series MCUs.

Pod probe

This means pod probe M30100T-PRB (this product) for the M30100/M30102 Group MCUs.

Host machine

This means a personal computer used to control the emulator and emulation pod.

Emulator debugger

This means a software tool M3T-PD30 to control the emulator from the host machine through an interface.

Firmware

Program that analyzes contents of communication with the emulator debugger and controls the emulator hardware. This program is installed in the EEPROM in the emulator main unit. This program is downloadable from the emulator debugger to upgrade the firmware or to support other MCUs.

Software break

A software break is a function to break the program before the system executes an instruction at the specified address. The instruction at the preset address will not be executed.

Hardware break

A hardware break is a function to break the program when the system detects a write/read of data to/ from memory or a rise/fall edge of the signal entered from the external trace cable. The former break function is called address break; and the latter break function is called trigger break. While the instruction at the address where the software break is set is not executed, a hardware break is performed after the specified instruction is executed.

Evaluation MCU

This means the MCU mounted on the pod probe which is operated in the specific mode for tools.

Target MCU

This means the MCU you are going to debug.

Target system

This means a user's application system using the MCU to be debugged.

*****

In this user's manual, this symbol is used to show active Low. (e.g. RESET*: Reset signal)

MEMO

Chapter 1. Precautions for Safety

This chapter describes precautions for using this product safely and properly. For precautions for the emulator main unit, the emulation pod main unit and the emulator debugger, refer to each user's manual included with your product.

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Chapter 1. Precautions for Safety

In both the M30100T-PRB User's Manual and on the product itself, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.

This chapter describes the precautions which should be taken in order to use the M30100T-PRB safely and properly. Be sure to read this chapter before using this product.

1.1 Safety Symbols and Meanings

⚠ **WARNING**	If the requirements shown in the "WARNING" sentences are ignored, the equipment may cause serious personal injury or death.
⚠ **CAUTION**	If the requirements shown in the "CAUTION" sentences are ignored, the equipment may malfunction.
IMPORTANT	It means important information on using this product.

In addition to the three above, the following are also used as appropriate.

△ means WARNING or CAUTION.

Example: **CAUTION AGAINST AN ELECTRIC SHOCK**

⃠ means PROHIBITION.

Example: **DISASSEMBLY PROHIBITED**

● means A FORCIBLE ACTION.

Example: **UNPLUG THE POWER CABLE FROM THE RECEPTACLE.**

The following pages describe the "IMPORTANT" precautions.

IMPORTANT

Note on Final Evaluation:

- Be sure to evaluate your system and make final confirmation with an MCU for evaluation.

Note on Custom Command RESET_10:

- With the M30100T-RPD-E you need to execute custom command RESET_10 every time you start up the emulator debugger (refer to the M30100T-RPD-E User's Manual). Otherwise, the emulator system may runaway.

Note on MAP References and Settings:

- When starting up the M30100T-RPD-E, initial MAP settings are as follows. Use generally the M30100T-RPD-E in this setting.

  00000h--003FFh: "EXT"
  00400h--FFFFFh: "INT" (Emulation memory available)

Notes on Interrupts:

- Even while the target program is not being executed (when the target program is paused or while debug programs are running), the evaluation MCU is operating for controlling debug programs. Therefore, take note that timers and other functions do not come to a halt even when the target program is not executed.
- If a maskable interrupt is requested while a target program is not being executed (when the target program is paused or while debug programs are running), the interrupt is not accepted, because the emulator disables maskable interrupts. If a maskable interrupt is requested while a target program is not being executed and the program allow the interrupt, the interrupt is accepted immediately after the target program execution is started.

IMPORTANT

Note on Differences between the Actual MCU and Emulator:

- Operations of the emulator system differ from those of actual MCUs as listed below.

(1) Initial values of internal resource data at power-on

(2) Internal memories (ROM and RAM) capacities, etc.

With this emulator system, "INT" (emulation memory is valid) is the default for mapping areas other than the SFR area (addresses 000h--3FFh). For this reason, the emulation memories can be read and written into in an area other than the SFR, internal RAM or internal ROM area.

(3) Oscillator circuit

- Make note of the fact that in the oscillator circuit where an oscillator is connected between pins X_{IN} and X_{OUT}, oscillation does not occur because a flexible cable, buffer IC and other devices are used between the evaluation MCU and the target system. It is same for sub-clock oscillator circuits (X_{CIN} and X_{COUT}).
- For note on when using the oscillator circuit on the target system, refer to the M30100T-RPD-E User's Manual.

(4) Pin X_{OUT}

Pin X_{OUT} is not assigned to the evaluation MCU used by this product. For this reason, pin X_{OUT} of this product is open.

(5) Pin IVCC

Pin IVCC of this product is open. The circuit for IVCC on the M30100T-PRB is connected to pin IVCC on the evaluation MCU.

(6) DBC, single-step and BRK instruction interrupt vector table addresses

It is possible to download to DBC, single-step and BRK instruction interrupt vector table addresses. However, because the emulator system uses these areas, data different from the expected value is read out.

Table 1.1 Vector table addresses for the emulator

Factor to interrupt	Vector table addresses	Data for reading
DBC*1	FFFF4h--FFFF7h	Indefinite
Single-step*1	FFFECh--FFFEFh	Indefinite
BRK instruction*1	FFFE4h--FFFE7h	Indefinite

*1: Interrupts used for the debugger only

(7) A-D conversion

The characteristics of A-D converter differ from those of actual MCU because there are a flexible cable, pitch converter and other devices between the evaluation MCU and the target system. Make the final evaluation of the A-D converter with the actual MCU.

(8) D-A conversion

The characteristics of D-A converter differ from those of actual MCU because there are a flexible cable, pitch converter and other devices between the evaluation MCU and the target system. Make the final evaluation of the D-A converter with the actual MCU.

IMPORTANT

Note on Instructions that Access the Single-step Interrupt Vector Area:

- Do not perform the below debugging operations with the single step interrupt vector area (addresses FFFECh--FFFEFh).

  (1) Step execution of instructions that access the single step interrupt vector area

  (2) Program execution from the instruction accessing the single step interrupt vector area when a software breakpoint is set at the instruction

Notes on Clock Supply to the MCU:

- Clock can be supplied to the evaluation MCU in one of the following two ways. This is determined by emulator debugger clock selection.

  (1) When "Internal" is selected:
  The clock generated by the oscillator circuit in the emulation pod is supplied to the evaluation MCU. The clock is continually supplied to the evaluation MCU regardless of "the state of target system clock" and "the state of target program execution".

  (2) When "External" is selected:
  Clock supply to the evaluation MCU depends on the state of oscillation (oscillate/off) of the target system.

- For the M30100T-RPD-E, the frequency of an oscillator circuit board should be 2 MHz or more.
- You can input a square wave of frequency of 0 to 16 MHz to X_{IN} from the target system. To debug programs in a frequency of 2 MHz or less and without oscillation, set a clock to "EXT" and use X_{IN} from the target system.

Note on Protect Register:

- A protect is not canceled when write enable bit 2 (PRC2) for the port P0 direction register is changed with the below procedure.

  (1) Step execution of an instruction setting "1" to PRC2

  (2) Execution from the instruction setting "1" to PRC2 where a software breakpoint is set

  (3) Setting a breakpoint from the instruction setting "1" to PRC2 to a point where a register to be protected is set

  (4) Setting "1" to PRC2 by the dump window or script window

MEMO

Chapter 2. Preparation

This chapter describes the package components, the system configuration and the preparation for using this product for the first time.

2.1 Package Components 14
2.2 Other Tool Products Required for Development 14
2.3 System Configuration 15

Chapter 2. Preparation

2.1 Package Components

This product consists of the following items. When unpacking, check to see if your product package contains all of these items.

Table 2.1 Package components

Item	Quantity
M30100T-PRB pod probe for M30100/M30102 Group MCUs	1
Screws for fixing pod probe	2
M30100T-PRB User's Manual (this manual)	1
M30100T-PRB User's Manual (Japanese)	1
M30100T-PRB Repair Request Sheet (English/Japanese)	1

Please keep the M30100T-PRB's packing box and cushion material in your place for reuse at a later time when sending your product for repair or other purposes. Always use these packing box and cushion material when transporting the M30100T-PRB.

If any of these items are missing or found faulty, please contact your local distributor. Also, if there is any question or doubt about the packaged product, contact your local distributor.

2.2 Other Tool Products Required for Development

To bring forward programs development on the M30100/M30102 Group MCUs, the products listed below are necessary in addition to the package components listed above. Get them separately.

Table 2.2 Other tool products

Emulator main unit	PC4701
Emulation pod main unit	M30100T-RPD-E
Emulator debugger	M3T-PD30 (Ver.4.00 or later recommended)
Converter board	For 32-pin LQFP (32P6U-A): M30100T-PTC For 48-pin LQFP (48P6Q-A): M30102T-PTC The converter board which matches to the foot pattern of the target system is required.

To purchase these products, contact your nearest distributer.

2.3 System Configuration

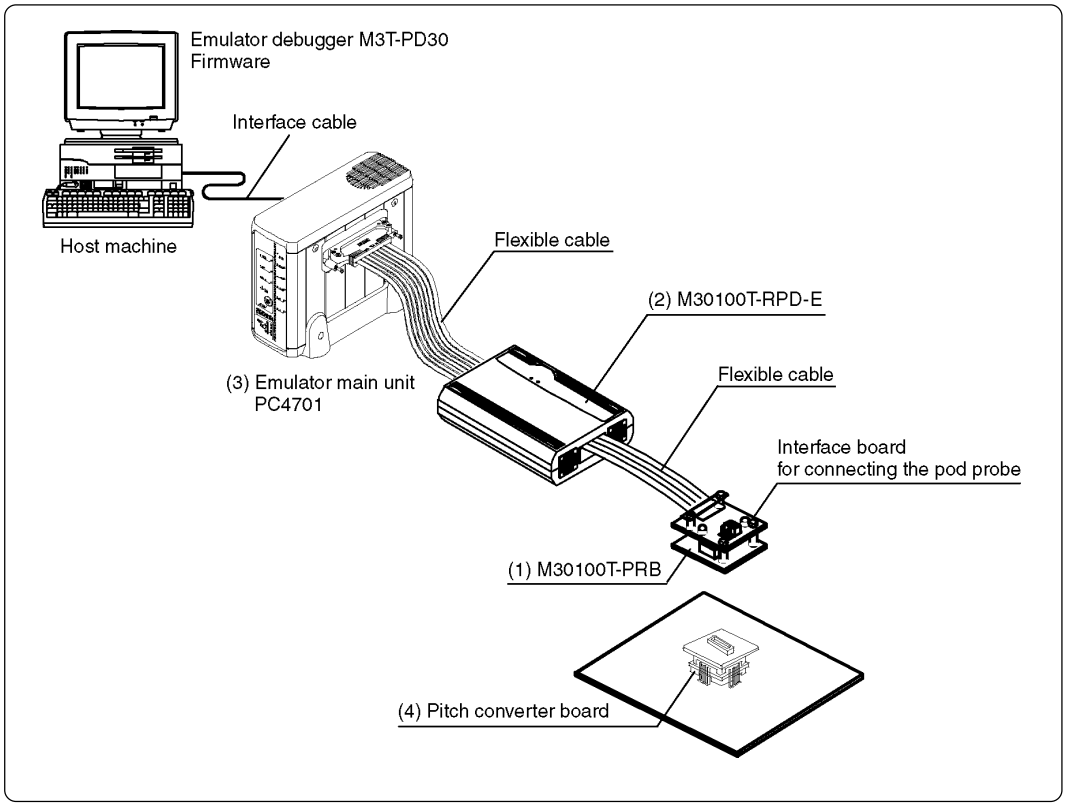

Figure 2.1 System configuration

Product (1) shown in Figure 2.1 is this product. Get (2) to (4) separately.

(1) Pod probe M30100T-PRB

This pod probe is for M30100/M30102 Group MCUs. The evaluation MCU M30102-TOOL is mounted on it.

(2) Emulation pod M30100T-RPD-E

This emulation pod is for the M16C/10 Series MCUs.

(3) Emulator main unit PC4701

This is a PC4701 series emulator main unit.

(4) Pitch converter board

This is a pitch converter board to be mounted on the foot pattern prepared on the target system. For details on the connection, refer to "3.4 Connecting the Target System" (page 21).

MEMO

Chapter 3. Setting Up

This chapter describes switch settings required for using this product and how to connect this product to the PC4701 and the target system.

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3.5 Procedure for Making an MCU File for M3T-PD30 24

Chapter 3. Setting Up

With this product, it is necessary to set the following according to your target system.

- Pin X_{CIN}/X_{COUT} to the target system
- Mounting the A-D ana D-A conversion bypass capacitors

3.1 Switch Settings

It is necessary to set the switches of the FLX64-PRB for debugging according to the target system. Figure 3.1 shows the positions of the switches of the FLX64-PRB, and Table 3.1 shows the switch settings.

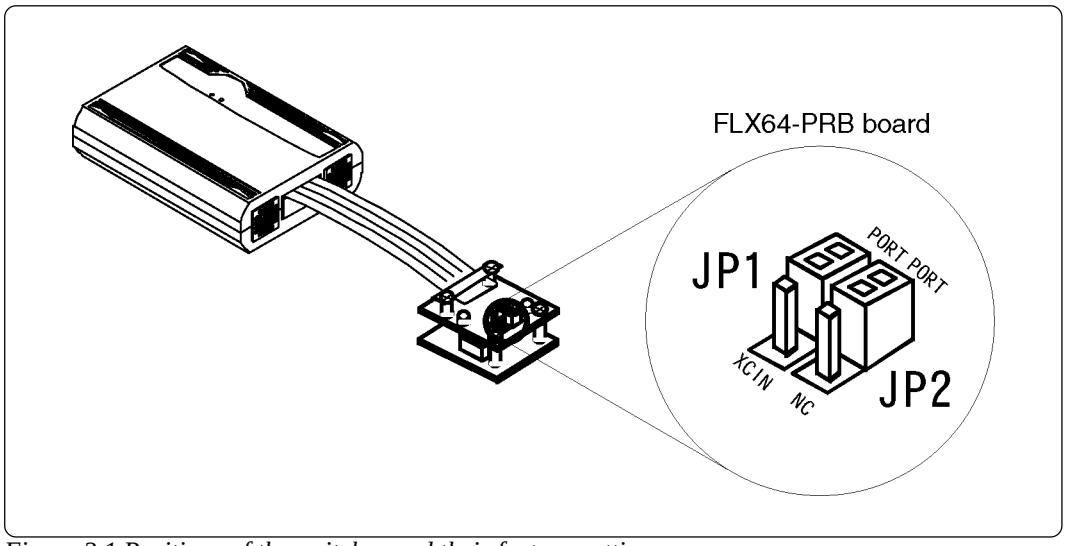


Figure 3.1 Positions of the switches and their factory-settings

Table 3.1 Switch settings of the FLX64-PRB

Board	Switch No.	Function	Switch setting	
FLX64-PRB	JP1	P47/X_{CIN}	PORT XCIN When using the P47/X_{CIN} as a port (Factory-setting)	PORT XCIN When using the P47/X_{CIN} as X_{CIN}
	JP2	P46/X_{COUT}	PORT NC When using the P46/X_{COUT} as a port (Factory-setting)	PORT NC When not connecting the P46/X_{COUT}

3.2 A-D and D-A Conversion Bypass Capacitors

This product has foot patterns on the board for mounting a bypass capacitor for the A-D and D-A converter circuits. Mount a suitable bypass capacitor as occasion demands.

Figure 3.2 shows the position of the bypass capacitor.

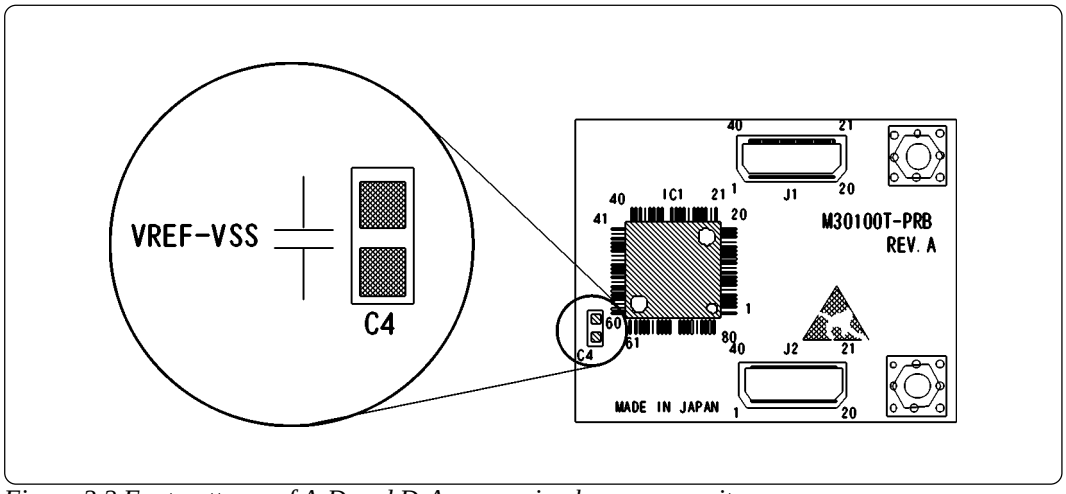


Figure 3.2 Foot patterns of A-D and D-A conversion bypass capacitors

IMPORTANT

Note on the Operation of A-D Converter:

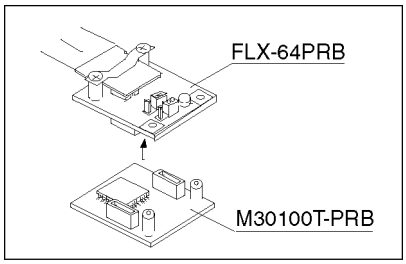
- The characteristics of A-D converter differ from those of actual MCU because there are a flexible cable, pitch converter and other devices between the evaluation MCU and the target system. Make the final evaluation of the A-D converter with the actual MCU.

Note on the Operation of D-A Converter:

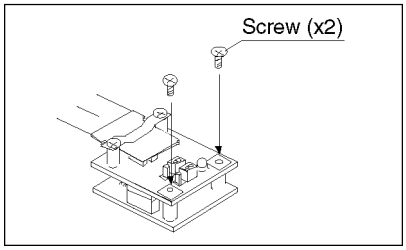
- The characteristics of D-A converter differ from those of actual MCU because there are a flexible cable, pitch converter and other devices between the evaluation MCU and the target system. Make the final evaluation of the D-A converter with the actual MCU.

3.3 Connecting the M30100T-RPD-E

The emulation pod for the M30100/M30102 Group MCUs consists of the two products, the M30100T-RPD-E emulation pod main unit and the M30100T-PRB pod probe. Figures 3.3 and 3.4 show how to connect the M30100T-PRB and how to remove it, respectively.

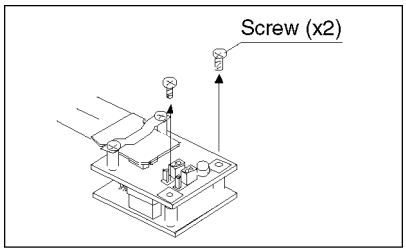


(1) Connect connectors J1 and J2 of the M30100T-PRB to connectors J3 and J4 of the FLX64-PRB.

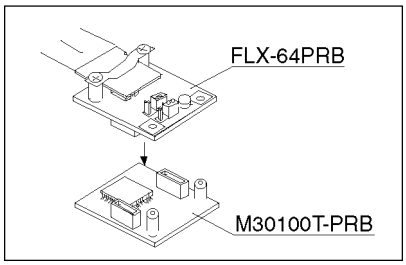


(2) Fix the FLX64-PRB by the two screws.

Figure 3.3 Connecting pod probe M30100T-PRB



(1) Unscrew the two screws of the M30100T-PRB.



(2) Remove the M30100T-PRB from the FLX64-PRB. In this time, lift off the M30100T-PRB horizontally. Otherwise, the connector may cause a break.

Figure 3.4 Removing pod probe M30100T-PRB

⚠ CAUTION

When Connecting the Pod Probe:

- Be sure to turn off the power before making connections. Otherwise, the internal circuits may be damaged.
- The small connectors of the M30100T-PRB (J1 to J3) and FLX64-PRB (J3 and J4) are guaranteed for only 50 insertion/removal iterations.

3.4 Connecting the Target System

There are two ways available to connect this product to target system as shown in Figure 3.5.

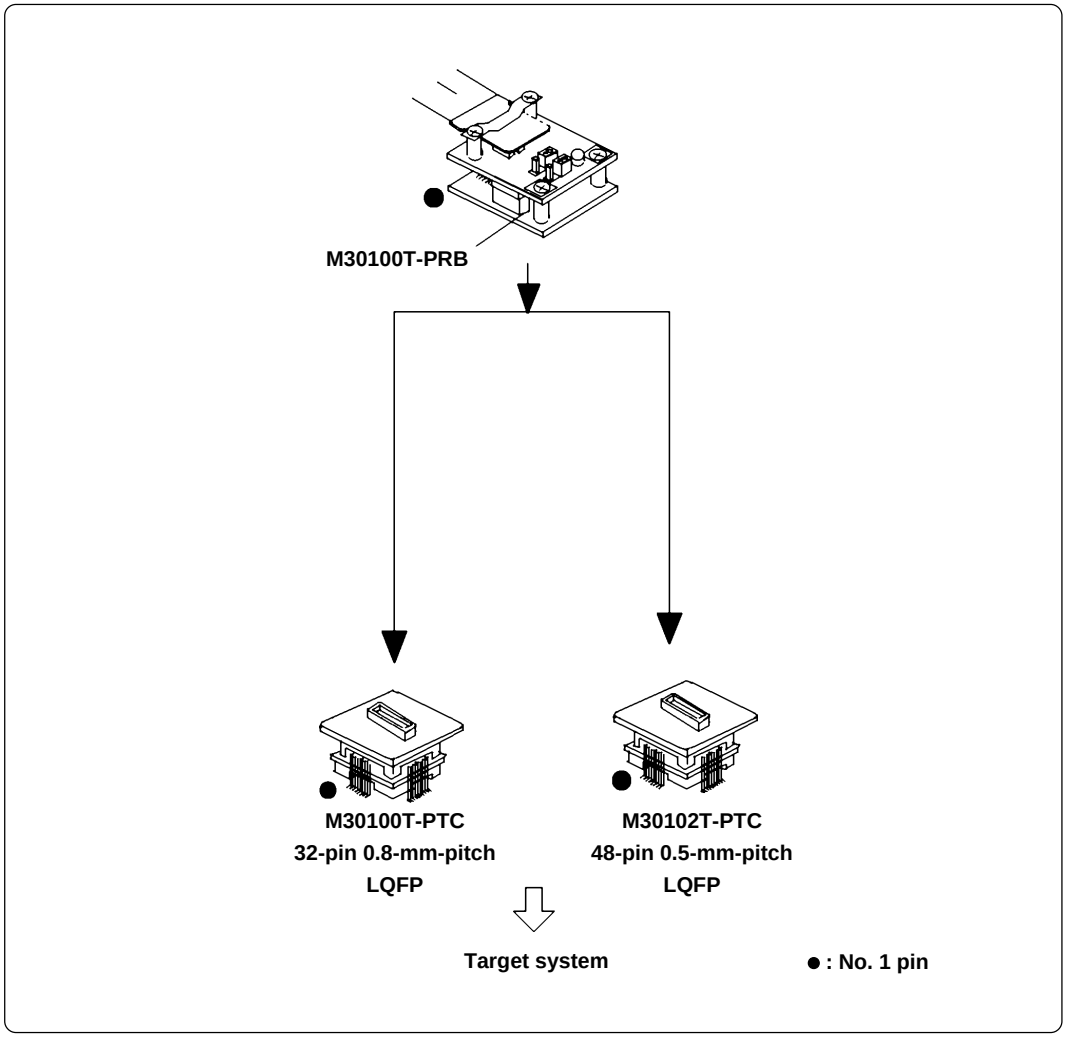
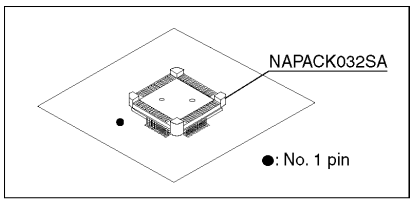
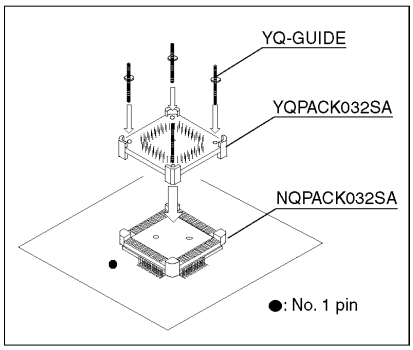


Figure 3.5 Connecting the target system

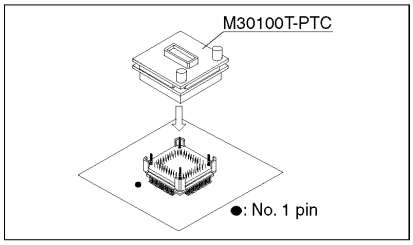
Figures 3.6 and 3.7 show how to connect converter board M30100T-PTC for 32-pin 0.8-mm-pitch package and how to connect converter board M30102T-PTC for 48-pin 0.5-mm-pitch package, respectively.



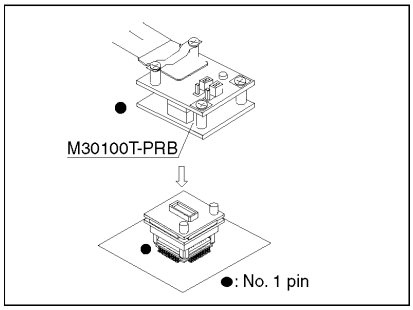
(1) Mount the NQPACK032SA to the target system.



(2) Connect the YQPACK032SA to the NQPACK032SA using the YQ-GUIDE's
(As the screws included with the YQPACK032SA are used for the HQPACK032SA, do not use them for securing the YQPACK032SA.)



(3) Connect the M30100T-PTC along the YQ-GUIDE's.



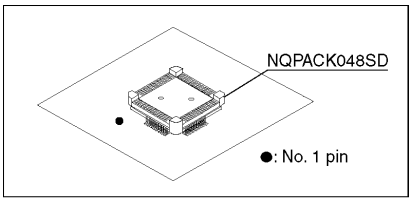
(4) Connect the M30100T-PRB.

Figure 3.6 Connecting converter board M30100T-PTC for 32-pin 0.8-mm-pitch LQFP

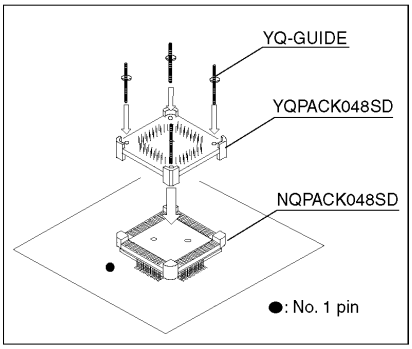
⚠CAUTION

Note on Connecting the Target System:

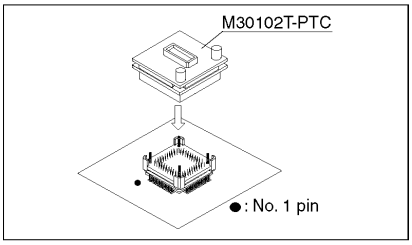
- Take care not to mount the pitch converter board in a wrong direction. Otherwise, it may cause a fatal damage to the emulation pod.



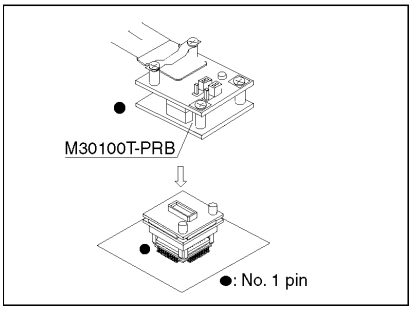
(1) Mount the NQPACK048SD to the target system.



(2) Connect the YQPACK048SD to the NQPACK048SD using the YQ-GUIDE's
(As the screws included with the YQPACK048SD are used for the HQPACK048SD, do not use them for securing the YQPACK048SD.)



(3) Connect the M30102T-PTC along the YQ-GUIDE's.



(4) Connect the M30100T-PRB.

Figure 3.7 Connecting converter board M30102T-PTC for 48-pin 0.5-mm-pitch LQFP

⚠CAUTION

Note on Connecting the Target System:

- Take care not to mount the pitch converter board in a wrong direction. Otherwise, it may cause a fatal damage to the emulation pod.

3.5 Procedure for Making an MCU File for M3T-PD30

It is necessary to change the contents of the MCU file according to the MCU to be developed. Make the MCU file M30100.MCU for M30100 Group and M30102.MCU for M30102 Group in the "mcufiles" folder in the folder where emulator debugger M3T-PD30 is stored.

The contents of the MCU file give the addresses of SFR area, internal RAM area, internal ROM area and the name of firmware file as listed below. Change the contents of the MCU file according to the target MCU. Use your editor for changing the MCU file.

The examples of contents of the MCU file are as follows:

For 30100 Group, 1KB RAM, 24KB ROM (file name: M30100.MCU)

0:	SFR area	Start address
3FF:		End address
400:	Internal	RAM Start address
7FF:		End address
FA000:	Internal ROM	Start address
FFFFF:		End address
M30620B:	Name of firmware (Do not change.)	
0:	Expansion No.	M3T-PD30 V.4.00 or later required (Do not change.)

Chapter 4. Specifications

This chapter describes specifications of this product.

4.1 Specifications 26
4.2 External Dimensions 27
(1) External Dimensions of the Pod Probe 27
(2) External Dimensions of Converter Board M30100T-PTC 28
(3) External Dimensions of Converter Board M30102T-PTC 28

Chapter 4. Specifications

4.1 Specifications

Table 4.1 lists the specifications of the M30100T-PRB.

Table 4.1 Specifications of the M30100T-PRB

Emulators		PC4701
Emulation pod main unit		M30100T-RPD-E
Applicable MCUs		M30100/M30102 Group MCUs
Usable MCU mode		Single-chip mode
Emulation memory		1 MB
Operating power voltage		2.7--5.5 V
Operating frequency	4.8--5.5 V	16.0 MHz, 0-wait
	4.2--5.5 V	12.0 MHz, 0-wait
	2.7--5.5 V	5.0 MHz, 0-wait
Stack capacity for the emulator		Max. 8 bytes
Suspended cycles in run-time debug		16-byte dump: About 312 BCLK cycles 16-byte fill: About 283 BCLK cycles
Power supply to emulation pod		1. Supplied from the emulator main unit 2. The operating voltage of the emulation pod main unit is determined by detecting the supply voltage of the target system. When no target system is connected, or when the supply voltage of the target system is more than 5.0 V, the operating voltage is 5.0 V.
Operating temperature range		5 to 35℃ (no dew) 20 to 30℃ (in CPU rewrite mode)
Storage temperature range		-10 to 60℃ (no dew)
Connection to the target system See "3.4 Connecting the Target System" (page 21).		32-pin 0.8-mm-pitch LQFP (32P6U-A): M30100T-PTC (separately available) 48-pin 0.5-mm-pitch LQFP (48P6S-A): M30102T-PTC (separately available)

4.2 External Dimensions

(1) External Dimensions of the Pod Probe

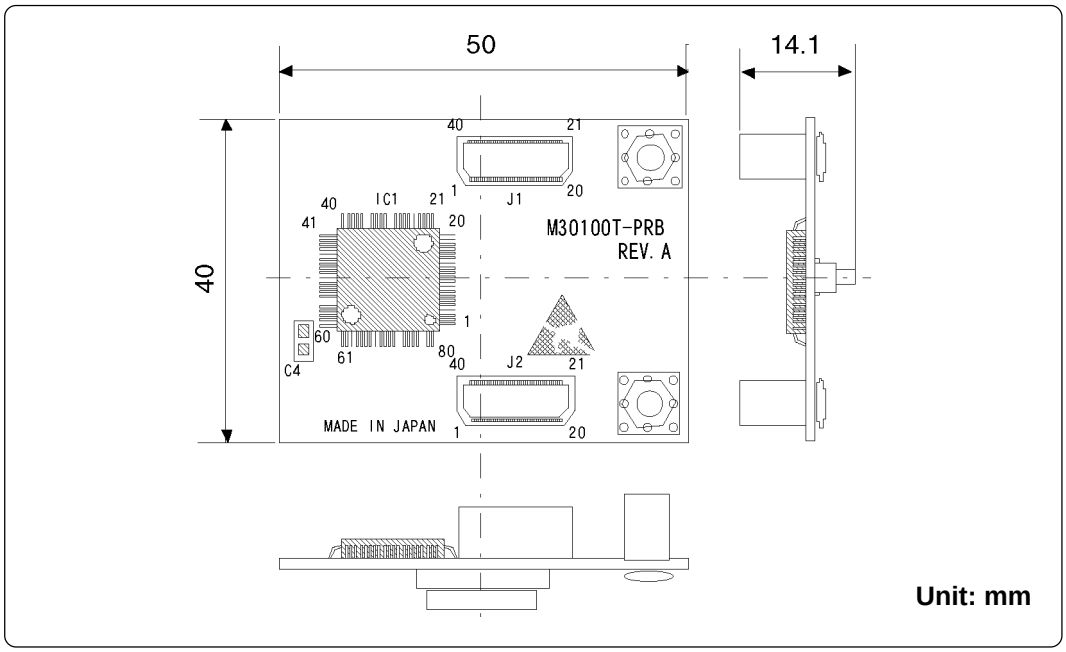


Figure 4.1 External dimensions of the M30100T-PRB

(2) External Dimensions of Converter Board M30100T-PTC

Figure 4.2 shows the external dimensions and a sample foot pattern of converter board M30100T-PTC for 32-pin 0.8-mm-pitch LQFP.

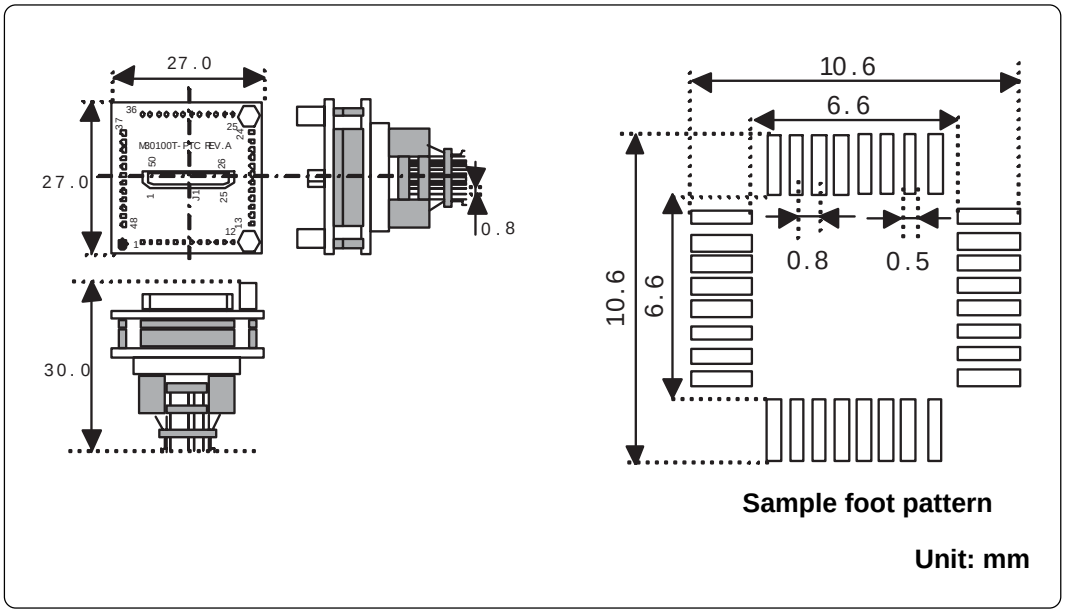


Figure 4.2 External dimensions of the M30100T-PTC

(3) External Dimensions of Converter Board M30102T-PTC

Figure 4.3 shows the external dimensions and a sample foot pattern of converter board M30102T-PTC for 48-pin 0.5-mm-pitch TQFP.

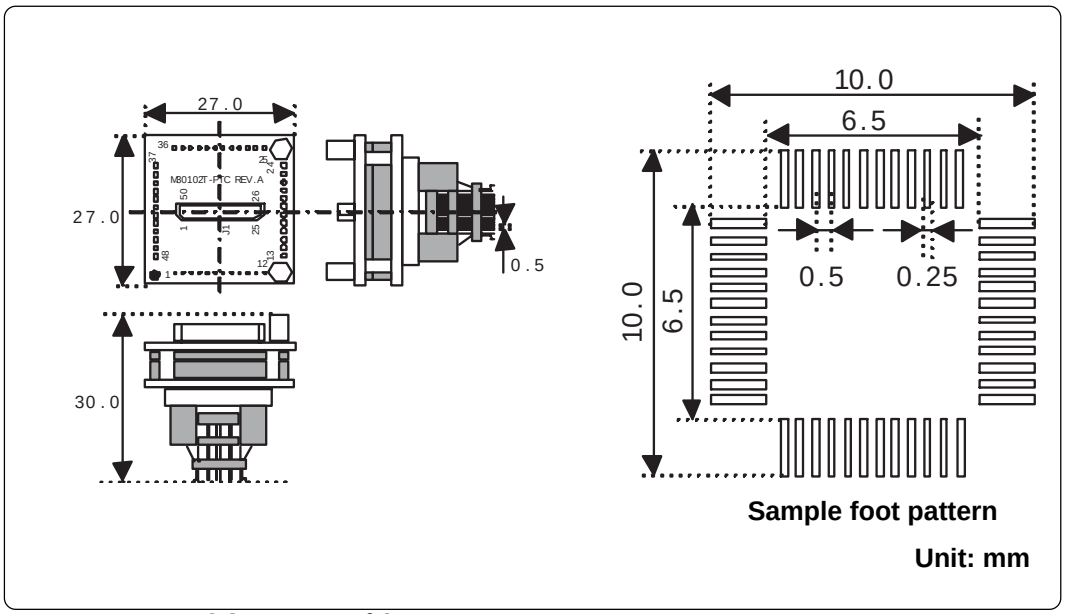


Figure 4.3 External dimensions of the M30102T-PTC

Chapter 5. Troubleshooting

This chapter describes how to troubleshoot when this product does not work properly.

5.1 When the Emulator Debugger Does Not Start Up Properly 30
(1) When the LED Display of the PC4701 is Abnormal 30
(2) Errors Occur When Starting Up the Emulator Debugger (When the target system is connected) 31
(3) Errors Occur When Starting Up the Emulator Debugger (When the target system is not connected) 32
5.2 Operation Differs from That of Actual MCUs 33

Chapter 5. Troubleshooting

When this product does not work properly, check the following.

For the latest FAQs, refer to the URL below.

http://www.renesas.com/eng/products/mpumcu/toolhp/faq/m16c/m16c_e.htm

5.1 When the Emulator Debugger Does Not Start Up Properly

(1) When the LED Display of the PC4701 is Abnormal

Table 5.1 LED's abnormal display and its checkpoints

Error	Connection to the target system	Checkpoint
LEDs do not light up.	-	Recheck that the power cable is connected to the PC4701. *See the PC4701 User's Manual.*
All LEDs remain lit.	-	(1) Recheck that the connection between the M30100T-RPD-E and this product. *See "3.3 Connecting the M30100T-RPD-E" (page 20).* (2) Recheck that the connection between the PC4701 and the M30100T-RPD-E. *See the M30100T-RPD-E User's Manual.*
The POWER LED of "STATUS OF TARGET" does not light up.	Connected	Check that power is properly supplied to the target system and that the target system is properly grounded.
The CLOCK LED of "STATUS OF TARGET" does not light up.	Disconnected	(1) Check that both the main and sub clocks of the emulator debugger are not set to "EXT". *See the CLK command of the emulator debugger.* (2) Check that the oscillator circuit in the M30100T-RPD-E is oscillating. *See the M30100T-RPD-E User's Manual.*
	Connected	(1) Check that the oscillator circuit in the target system is oscillating properly. (2) Check that the switches of the FLX64-PRB are correctly set. *See "3.1 Switch Settings" (page 18).*
The RESET LED of "STATUS OF TARGET" does not go out.	Connected	Check that the reset pin of the target system is pulled up.

(2) Errors Occur When Starting Up the Emulator Debugger (When the target system is connected)

Table 5.2 Checkpoints of errors when starting up the emulator debugger (target is connected)

Error	Checkpoint
Target MCU runaway.	Check that when the emulator debugger is started up, custom command RESET_10 is executed. If it is not executed, restart the emulator debugger. *See the M30100T-RPD-E User's Manual.*
Communication ERROR Data is not sent to the target	Check that all emulator debugger settings, interface cable connections and switches on the rear of the PC4701 match. *See the user's manuals of the PC4701 and emulator debugger.*
Target system is not constructed properly	(1) Download the proper firmware. *See the user's manual of the emulator debugger.* (2) Recheck that the connection between the M30100T-RPD-E and this product. *See "3.3 Connecting the M30100T-RPD-E" (page 20).* (3) Recheck that the connection between the PC4701 and the M30100T-RPD-E. *See the M30100T-RPD-E User's Manual.*
The version of M3T-PD30 and the firmware on the target system are not same	Download the proper firmware. *See the user's manual of the emulator debugger.*
Target MCU is reset state	Check that the reset pin of the target system has changed from Low to High.
Target MCU cannot be reset	(1) Check that pin RESET* is held High. (2) If the reset circuit of the target system has a watchdog timer, disable the timer. (3) Check that power is properly supplied to the target system and that the target system is properly grounded.
Target MCU is in "HOLD" state	The MCU is either in the stop mode or wait mode. Either reset the MCU or cancel the mode with an interrupt. *See MCU specifications.*
Target clock is stopped	(1) Check that the oscillator circuit in the target system is oscillating properly. (2) Check that the oscillator circuit in this product is oscillating properly. (3) Check that the switches of the FLX64-PRB are correctly set. *See "3.1 Switch Settings" (page 18).*
Target MCU is not receiving power	Check that power is properly supplied to the target system and that the target system is properly grounded.

(3) Errors Occur When Starting Up the Emulator Debugger (When the target system is not connected)

Table 5.3 Checkpoints of errors when starting up emulator debugger (target is not connected)

Error	Checkpoint
Target MCU runaway.	Check that when the emulator debugger is started up, custom command RESET_10 is executed. If it is not executed, restart the emulator debugger. *See the M30100T-RPD-E User's Manual.*
Communication ERROR Data is not sent to the target	Check that all emulator debugger settings, interface cable connections and switches on the rear of the PC4701 match. *See the user's manuals of the PC4701 and emulator debugger.*
Target system is not constructed properly	(1) Download the proper firmware. *See the user's manual of the emulator debugger.* (2) Recheck that the connection between the M30100T-RPD-E and this product. *See "3.3 Connecting the M30100T-RPD-E" (page 20).* (3) Recheck that the connection between the PC4701 and the M30100T-RPD-E. *See the M30100T-RPD-E User's Manual.*
The version of M3T-PD30 and the firmware on the target are not same	Download the proper firmware. *See the user's manual of the emulator debugger.*
Target MCU is in "HOLD" state	The MCU is either in the stop mode or wait mode. Either reset the MCU or cancel the mode with an interrupt. *See MCU specifications.*
Target clock is stopped	(1) Check that the oscillator circuit in this product is oscillating properly. (2) Check that the switches of the FLX64-PRB are correctly set. *See "3.1 Switch Settings" (page 18).*

5.2 Operation Differs from That of Actual MCUs

Make note that operation when using the emulation pod differs from that of actual MCUs as follows.

(1) Initializing the internal resources of MCU at power-on

(2) Internal memories (ROM and RAM) capacities, etc.

With this emulator system, "INT" (emulation memory is valid) is the default for mapping areas other than the SFR area (addresses 000h--3FFh). For this reason, the emulation memory can read and write in areas other than the SFR, internal RAM and internal ROM.

(3) Oscillator circuit

- Make note that in the oscillator circuit where a resonator is connected between pins X_{IN} and X_{OUT}, oscillation does not occur because a flexible cable, buffer IC and other devices are used between the evaluation MCU and the target system. It is same for sub-clock oscillator circuits (X_{CIN} and X_{COUT}).
- For note on when using the oscillator circuit on the target system, refer to "4.2 (2) Using target system's oscillator" in the M30100T-RPD-E User's Manual.

(4) Pin X_{OUT}

Pin X_{OUT} is not assigned to the evaluation MCU used by this product. For this reason, pin X_{OUT} of this product is open.

(5) DBC, single-step and BRK instruction interrupt vector table addresses

It is possible to download to DBC, single-step and BRK instruction interrupt vector table addresses. However, because the emulator system uses these areas, data different from the expected value is read out.

(6) A-D and D-A converters

The characteristics of A-D and D-A converters differ from those of actual MCU because there are a flexible cable, pitch converter and other devices between the evaluation MCU and the target system. Make the final evaluation of the A-D and D-A converters with the actual MCU.

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Chapter 6. Maintenance and Warranty

This chapter describes how to maintenance, repair provisions and how to request for repair.

6.1 Maintenance 36
6.2 Warranty 36
6.3 Repair Provisions 36
6.4 How to Request for Repair 37

Chapter 6. Maintenance and Guarantee

6.1 Maintenance

If dust or dirt collects on any equipment of your emulation system, wipe it off with a dry soft cloth. Do not use thinner or other solvents because these chemicals can cause the equipment's surface coating to separate.

6.2 Guarantee

If your product becomes faulty within twelve months after its purchase while being used under good conditions by observing "Precautions for Safety" described in Chapter 1 of this user's manual, we will repair or replace your faulty product free of charge. Note, however, that if your product's fault is raised by any one of the following causes, we will repair it or replace it with new one with extra-charge:

- Misuse, abuse, or use under extraordinary conditions
- Unauthorized repair, remodeling, maintenance, and so on
- Inadequate user's system or misuse of it
- Fires, earthquakes, and other unexpected disasters

In the above cases, contact your local distributor. If your product is being leased, consult the leasing company or the owner.

6.3 Repair Provisions

(1) Repair with extra-charge

The products elapsed more than twelve months after purchase can be repaired with extra-charge.

(2) Replacement with extra-charge

If your product's fault falls in any of the following categories, the fault will be corrected by replacing the entire product instead of repair, or you will be advised to purchase new one, depending on the severity of the fault.

- Faulty or broken mechanical portions
- Flaw, separation, or rust in coated or plated portions
- Flaw or cracks in plastic portions
- Faults or breakage caused by improper use or unauthorized repair or modification
- Heavily damaged electric circuits due to overvoltage, overcurrent or shorting of power supply
- Cracks in the printed circuit board or burnt-down patterns
- Wide range of faults that makes replacement less expensive than repair
- Unlocatable or unidentified faults

(3) Expiration of the repair period

When a period of twelve months elapses after the model was dropped from production, repairing products of the model may become impossible.

(4) Transportation fees at sending your product for repair

Please send your product to us for repair at your expense.

6.4 How to Request for Repair

If your product is found faulty, follow the procedure below to send your product for repair.

Customer

Fill in the Repair Request Sheet included with this product, then send it along with this product for repair to your local distributor. Make sure that information in the Repair Request Sheet is written in as much detail as possible to facilitate repair.

Distributor

After checking the contents of fault, the distributor should please send the faulty product along with the Repair Request Sheet to Renesas Solutions Corp.

Renesas Solutions

When the faulty product is repaired, it will be returned to the customer at the earliest convenience.

⚠ CAUTION

Note on Transporting the Product:

- When sending your product for repair, use the packing box and cushion material supplied with this product when delivered to you and specify handling caution for it to be handled as precision equipment. If packing of your product is not complete, it may be damaged during transportation. When you pack your product in a bag, make sure to use conductive polyvinyl supplied with this product (usually a blue bag). When you use other bags, they may cause a trouble on your product because of static electricity.

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M30100T-PRB User's Manual

Rev.1.00
September 1, 2003
REJ10J0278-0100Z

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